

IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF TEXAS
DALLAS DIVISION

OLLIE GREENE, Individually as the surviving parent of WYNDELL GREENE, SR., WILLIAM GREENE, as the Administrator of the Estate of WYNDELL GREENE, SR., and MARILYN BURDETTE-HARDEMAN, Individually and as the surviving parent of LAKEYSHA GREENE,

CAUSE NUMBER 3:11-cv-0207-N

Plaintiffs,

JURY TRIAL DEMANDED

TOYOTA MOTOR CORPORATION,
TOYOTA MOTOR ENGINEERING &
MANUFACTURING NORTH AMERICA,
INC., TOYOTA MOTOR SALES USA, INC.
VOLVO GROUP NORTH AMERICA, INC.
VOLVO TRUCKS NORTH AMERICA, a
DIVISION OF VOLVO GROUP NORTH
AMERICAN, LLC., STRICK
TRAILERS, LLC, JOHN FAYARD
MOVING & WAREHOUSE, LLC and
DOLPHIN LINE, INC.

Defendants.

DEFENDANT STRICK TRAILER'S BRIEF IN OPPOSITION TO
PLAINTIFFS' MOTION TO EXCLUDE THE REPORT AND TESTIMONY OF
DAVID VIANO

INTRODUCTION

Plaintiffs' motion to exclude Dr. David Viano's opinions on the grounds he is unqualified and formulated his opinions without application of a scientific methodology has no merit. [R.E.] Dr. Viano is one of the most qualified biomechanics in the world. [Ex. A - CV, App. 1-30]. His opinions incorporate knowledge from his own and other experts' non-litigation peer-reviewed,

published research. His detailed report provides the facts, methods, and reasoning that his opinions are based on. The methods he applied to formulate opinions on the mechanism of injury to each Greene family member are the same as methods he applied: at GM; as Editor-in-Chief and editors of biomechanical journals applying the peer review process; in other biomechanical work, including teaching biomechanical science; and as a committee member to the National Academy of Sciences Committee on Federal Trauma Research, and other committees. [Ex C - Aff. pp. 2-3, App. 104-105] The National Highway Traffic Safety Administration uses these methods in rulemaking activities; university researchers, safety engineers and biomechanics of other automotive companies utilize them. [Ex C - Aff. ¶¶ 14, 15 18(a)(iv), App. 106 & 108] Dr. Viano's methodologies *are* the methods of biomechanical science.

STANDARD OF REVIEW

The proponent is not required to establish the expert's opinion is correct, only that the testimony is reliable and derived by the scientific method. *Paz v Brush Engineered Materials, Inc.*, 555 F.3d 383, 388 (5th Cir. 2009). “Although the *Daubert* analysis is applied to ensure expert witnesses have employed reliable principles and methods in reaching their conclusions, the test does *not* judge the expert conclusions themselves.” *Guy v Crown Equipment Corporation*, 394 F3d 320, 322 (5th Cir. 2004) (citing *Daubert*, 509 U.S. at 594-95, 113 S.Ct. 2786). The court’s goal is to ensure that an expert, whether testimony is based upon professional studies or personal experience, employs in the courtroom the same intellectual rigor characterized by experts in the relevant field. *See Richardson v Union Pac Ry Co.* 2011 Ark. App. 562, 386 S.W.3d 77 (2011).

QUALIFICATIONS

Dr. Viano is eminently qualified to render biomechanical opinions rebuttal the opinions of Keith Friedman and Dr. Joseph Burton. He is a Doctor of Medicine and an engineer with a Ph.D. and M.S. in applied mechanics. In addition to 29 years of hands-on GM experience, Dr. Viano has overseen and applied the peer review process in numerous biomechanical journals. (Ex. C - Aff. Pp. 2-3, App. 104-105). He was appointed to the National Academy of Sciences Committee on Federal Trauma Research and many other committees on injury cause and prevention. [Ex. A - pp. 3, App. 4] He taught university level biomechanics and served as faculty advisor to Ph.D. candidates in the field. [Ex. A - pp. 1 & 5, App. 2 & 6] His work in automotive safety and injury prevention over the past 30 years is exemplified by his National Highway Traffic Safety Administration's Award for Safety Excellence and being an elected Fellow to the Society of Automotive Engineers,¹ the American Institute for Medical & Biomechanical Engineering, and the Association of the Advancement of Automotive Medicine, among others. [Ex. A - p. 3-6, App. 4-7] His qualifications are more fully described in his CV [Ex. A. - App. 1-30]

DR. VIANO'S OPINIONS ARE FIRMLY GROUNDED IN THE SCIENCE OF BIOMECHANICS AND ITS METHODS

Dr. Viano's methodologies to reach his conclusions are detailed in his Rule 26 report. [Ex. B. App. 31-1-1]. Dr. Viano used his own prior peer-reviewed published research on causes of fatality to rear-seated children and referenced multiple peer-reviewed, published studies on the

In the words of the S.A.E., a fellow is "the highest grade of membership, this recognizes and honors long term members who have made a significant impact on society's mobility technology through leadership, research and innovation...Election to Fellow is an exceptional professional distinction bestowed on around 20 recipients each year." Society of Automotive Engineers website.

issues addressed in this case. [Ex. B. - p. 32, 48, 56, 62-64, 70; App. 63, 79, 87, 93-95, 101]

Mechanism of Injury to the Greene Children

Dr. Viano relied on the respective medical examiners' conclusions that Wesleigh and Wyndell Greene II each died from blunt force head trauma. [Ex. B - p. 25, App. 56] His task was to determine which impact(s) caused those injuries. To determine forces, energies and acceleration levels, Dr. Viano evaluated the experts' accident reconstructions and calculated his own numbers, which corroborate Dr. Vogler's work. [Ex. B - p. 12, 25, 27, 29-31; App. 43, 56, 58, 60-62] He calculated the accelerations the rear seated children experienced (160g) and compared them to published tolerances for children. [Ex. B - p. 25, 32-35 App. 56, 63-66] From numerous available photographs and 3-dimensional scans, he evaluated the magnitude and location of rear intrusion from the Volvo tractor rear-impact. That impact violently shoved the rear seats forward into the front seats, crushing the children. [Ex. B - p.14-15, 25; App. 45-46, 56] To determine if this was the mechanism of death, he referenced his prior research on fatal injuries to rear-seated children and in high-speed rear impacts. [Ex. B - p. 25-26, App. 56-57; CV-Pub Nos. 242, 308, 309, 318, & 319, App. 23, 26-27] Using physics and known occupant kinematics from crash tests and research, Dr. Viano evaluated whether subsequent impacts were more likely mechanism(s) of the fatal injuries. Examining all potential injury mechanisms is a standard part of the scientific method in biomechanics. [Ex. C - ¶ 18 (d), App. 110] He considered the physical evidence (blood on the side of the trailer), the 4Runners' orientation changes during the impacts, and each child's location during these impacts. [Ex. B - p 17-18, App. 48-49]. He applied knowledge from his own design work on side impact protection, crash tests, publications, etc. to formulate his opinions. Dr. Viano's opinions on the children's

mechanisms of death are solidly grounded in the principles and methods of biomechanical science, are reliable, and admissible. Fed. R. Evid. 702.

*Dr. Viano Applied The Methods of Biomechanical Science to Determine
The Mechanism of Fatal Injury to Mrs. Greene*

To determine which impact caused Mrs. Greene's fatal atlanto-occipital dislocation and hinge skull fractures, Dr. Viano first calculated the acceleration levels for front seat occupants in the Volvo Tractor-4Runner rear impact. Comparing those to published tolerances for adults and research (such as Colonel Eli Beeding's sled test), Dr. Viano concluded Mrs. Greene likely survived the initial rear impact, but was dazed or unconscious. [Ex. B - p. 31. App. 62] Dr. Viano evaluated the physical intrusion the passenger side of the 4Runner sustained in the side impact with the Strick trailer, Mrs. Greene's seated position, and occupant kinematics of near side occupants in side impacts, where Dr. Viano is published. [Ex. A - CV Pub No. 225, App. 22]. To determine what structure caused the hinged skull fracture (and when), Dr. Viano performed a surrogate study using the subject trailer, an exemplar 4Runner and a person of Mrs. Greene's size. He aligned them to match the accident reconstruction, factoring in the damage such as the damage to Mrs. Greene's seat. He evaluated the physical evidence to determine that Mrs. Greene was restrained at impact. This study established Mrs. Greene's head fatally struck the trailer body **above** the underride guard. Given the known kinematics of near-side occupant injuries in side impacts and physical evidence on the 4Runner, before the guard's failure, Plaintiffs' assertion the underride guard was different from the accident underride guard is irrelevant. [Ex. B - p. 19-23, 27-8 App. 50-54, 58-59]

Plaintiffs' assertion that Dr. Viano was required to perform full scale crash tests or

computer simulations to corroborate the surrogate study is not supported by any factual or legal authority.² But Dr. Viano did evaluate whether the side airbag would have mitigated the severity of the head impact with the trailer body sufficiently to eliminate this point of impact as an injury mechanism. The calculated forces exceeded the known capacity of side air bags (a safety device Dr. Viano has himself designed). [Ex. D - D. Viano's Dep p. 116:5-118:8, App. 12-126; Ex. B. p. 27. App. 58]

Dr. Viano also evaluated when the atlanto-occipital dislocation (essentially an internal decapitation) occurred. The physical evidence, combined with occupant kinematics in the impact, showed the seat belt moved several inches in front of Mrs. Greene and could not have caused the neck injury.³ Plaintiffs' expert, Dr. Burton has no criticisms of Dr. Viano's surrogate study and utilizes such studies himself. [Ex. E - J. Burton's Dep, p. 84:17-23, App. 134]

This **is** biomechanics methodology: analyze fatal injuries found by the medical examiners; analyze damage to the vehicle where the occupants were seated to account for the injuries; study and analyze accidents with similar circumstances to see if such accidents are, or are not, a known cause of similar injuries; analyze other events in the accident sequence to determine what role they did or did not play. [Ex. C - App. 102-112]

The Mechanism of Non-Fatal Traumatic Injuries to Mr. Greene

Using similar methods, Dr. Viano evaluated the injury mechanisms causing Mr. Greene's traumatic, but non-fatal injuries. Contrary to Plaintiffs' assertion, Dr. Viano accepted the opinions

²Plaintiffs have not even established that a full scale crash test that approximates the complete vehicle movements in this impact could be run or that an existing computer program could validly do so. The surrogate study is documented by photographs, measurements and data.

³The accelerations in the rear impact were severe enough that it was a possibility, but no greater than a 20% chance of such an injury being sustained in the rear impact.

of Dr. Darrell Henderson, the burn specialist who treated Mr. Greene.

PLAINTIFFS' SPECIFIC ADDITIONAL CRITICISMS HAVE NO MERIT

1. *Dr. Viano's Field Accident Study Using the NASS-CDS Data Base Is Classic, Well-Accepted (and in this case, peer-reviewed and published research)*

The National Highway Traffic Safety Administration established the National Automotive Sampling System (NASS) Collision Data System (CDS) so that researchers could use it "to investigate injury mechanisms to improve vehicle designs." [Ex. F- NHTSA website, App. 136]. The data base is widely used, not only by NHTSA, but by safety researchers in the automotive industry and elsewhere. In *Campbell v. Fawber* 2013 WL 1330153 (M.D.Pa.), pp 2,12., the court rejected a Daubert challenge to opinions of the Plaintiffs' experts based on four NASS-CDS studies similar to the type which Dr. Viano did here. There, the plaintiff's expert had reviewed studies examining NASS-CDS data to determine associations between the degree of roof crush and the likelihood of sustaining injuries like the plaintiff suffered.

Plaintiffs erroneously (and without support) criticize Dr. Viano's NASS-CDS studies as a "random" selection of crashes and erroneously analogizes the study to statistical sampling of dissimilar types of accidents. [Plaintiffs' Brief, R.E. 472 p. 11] Dr. Viano used his prior peer-reviewed, published studies involving children of similar ages to the Greene children who were seated in the second row behind front-seated occupants during a rear impact. [Ex. B - p. 25, App. 56, and see publication references above] He did so to determine if, and under what circumstances, such a seated position led to fatal injuries to children. [Ex. B - p. 25-26, 29-32, 36, App. 56-57, 60-63, & 67] The study's finding of increased mortality rates and severe head injuries to second row occupants in a rear impact crash helped to corroborate the validity of his

opinion that the Greene children sustained the fatal injuries in the rear impact. [Ex. B - p. 25. App. 56] Use of published, peer reviewed studies are a reliable method, consistent with the *Daubert* factors. The study is admissible as are opinions which are based (although only in part) on it.

2. *Plaintiffs' criticisms of hair follicle and blood identification do not go to the reliability of the opinions*

Dr. Viano did not need to determine to whom blood and hair follicles beneath the trailer belonged. It is undisputed that after the initial impact, the 4Runner underrode the Strick trailer. Blood and hair can be deposited post-mortem. Dr. Viano determined the blood on the side of the trailer could only have come from Wyndell II (even though he was already deceased) based upon analysis of the vehicular movements, the seated position of Wyndell II and known principles of occupant kinematics. Plaintiffs' criticism is unsupported. Dr. Viano objectively based his opinion on the blood and hair follicles' location relative to the determined location of various occupants in the 4Runner and its alignment to the trailer during impact.⁴ [Ex. B - pp. 18 & 20, App. 49 & 50]

3. *Dr. Viano Testimony on the Underride Guard is Proper.*

Plaintiffs moved to strike Dr. Viano opinions on underride guard design issues, but Dr. Viano did not proffer any design or design defect opinions on guards. Dr. Viano opined that fatal injuries to Mrs. Greene and the children happened before the underride guard detached. [Ex. B - p. 19-23, 27-28, App. 50-54, 58-59] He based that opinion on physical evidence from the

⁴Blood was found in multiple areas on the trailer. Plaintiffs appear to only contest Dr. Viano's opinion on one location where blood and hair follicles were found. For blood under and on the side of the trailer, Dr. Viano's methods to determine blood source was the same.

4Runner showing the underride guard was still in place when Mrs. Greene sustained her fatal head impact into the trailer body. That evidence included the underride guard's imprint on the 4Runner, the amount of intrusion, Mrs. Greene's position, and the degree of intrusion needed for the trailer body to strike her head, causing the fatal hinge skull fracture. [Ex. B - p. 17, 20-22, 27-28, 30-31, App. 48, 51-53, 58-59, 61-62] There is no basis to exclude Dr. Viano from testifying on how the vehicles, their respective parts, and the Greene family kinematically interacted in the accident.

4. Dr. Viano's Opinion that Mrs. Greene did not Endure Pain and Suffering is Proper.

Plaintiffs want Dr. Viano's response to a hypothetical question to exclude his scientific opinion. Based on existing research and over 30 years experience, Dr. Viano concluded that Mrs. Greene was unconscious or dazed after the initial impact and so did not endure pain and suffering. [Ex. B - p. 31, App. 62] At deposition, Plaintiffs asked Dr. Viano to ignore the facts and presume that Mrs. Greene was conscious. [Ex. D - p. 84:10 - 85:4, App. 122-123] Plaintiffs' hypothetical, which deliberately ignored that Mrs. Greene was unconscious, should not serve to exclude Dr. Viano's opinion, based on the data, that Mrs. Greene did not endure pain and suffering.

**PLAINTIFFS' MADE INACCURATE STATEMENTS AND
OVERLY BROAD REQUESTS TO LIMIT DR. VIANO'S EXPERT OPINIONS**

In addition to the unsupported requests addressed above, Plaintiffs, request this Court to issue an order against Dr. Viano on topics he did not opine on, such as underride guard design

issues, “clinical” opinions,⁵ FMVSS compliance,⁶ and the December 17, 2013, Exponent crash test.⁷ It would be inappropriate for the court to address topics that are not currently at issue.

Plaintiffs brief also makes misleading statements. For example, Plaintiffs claim that Dr. Viano “ignore[d] the trooper’s conclusions and eyewitness testimony.” [Plaintiffs’ Brief, p 8] Dr. Viano accepted testimony from troopers that the 4Runner became sandwiched between the Volvo tractor and Dolphin’s trailer.⁸ [See Ex. E - C. Countryman’s Dep, p 45:16-17, App. 144 (“they were in a vehicle squished between two –two vehicles”) and 63:4, App 145 (“It was a violent crash. You - you’re getting swished [sic] between two truck tractors.”)] Additionally, all reliable testimony was objectively considered and unreliable eye witness testimony was dismissed.[See Ex. F - B. Thompson’s Dep, 26:23-27:4, App. 152-153, (testifying that the 4Runner hit a guardrail and burst into flames.)]

Plaintiffs also accuse Dr. Viano of blindly accepting Dr. Vogler’s reconstruction. [Plaintiffs’ Brief, R.E. 472, p. 21] This is a false accusation:

Q: Did you assume that the reconstruction of Dr. Volger was true and correct?
A: I actually evaluated the reconstruction so I – I didn’t assume that, I reached my own conclusions.
Q: Are you a reconstructionist?
A: I have done it, yes.

⁵Contrary to Plaintiffs’ assertions, Dr. Viano is a medical doctor. [See Ex. A - p. 1, App. 2]. He didn’t dispute the medical examiners’ respective findings, which correspond with Dr. Viano’s on the causes of death. [See, e.g. Ex. B - pp. 25, 28, App 56 & 59]

⁶While regulatory interpretations are inappropriate, opinions on compliance are admissible. *See Lyondell Petrochemical Company v Fluor Daniel, Inc.*, 888 s.W.2d 547, 555 (Tex.App–Houston 1994) (expert witnesses “assist the jury to measure compliance with the regulation.”)

⁷Dr. Viano’s Rule 26 report was submitted prior to this crash test. His opinions are not based upon it.

⁸Why Plaintiffs’ deny the Volvo’s second impact is an enigma. In addition to the Troopers testifying to it, Plaintiffs’ experts admitted there were two impacts from the Volvo. [See Ex. E - pp. 61:24-62:16 and 85:18-23, App. 131-132 & 134]

* * *

Q: By a court. Has a court ever – let me ask you this: Have you ever been hired by someone to give expert testimony where you've actually gone through and calculated things such as principal direction of force, yaw rates, yaw angle, Delta V's or BEV's.

A: Yes, I have. [Ex. D - pp. 19-20, App. 119-120]

Mischaracterizing facts serves no purpose. Dr. Viano is a highly qualified expert, whose testimony is reliable and provides significant probative value on important issues to this case. His testimony is admissible under Fed. R. Evid. 403. It passes *Daubert* challenges. Therefore, Dr. Viano's Rule 26 report, his testimony, and his opinions before this Court are proper.

CONCLUSION

For all the foregoing reasons, Strick respectfully asks this Court to enter an order denying Plaintiffs' Motion to Exclude the Report and Testimony of Dr. David Viano. However, Defendant Strick is more than pleased to present Dr. Viano at a hearing to further lay a foundation if the Court deems it necessary.

Respectfully submitted,
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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on Monday, April 7, 2014, a true and correct copy of the above and foregoing was forwarded to all counsel of record in accordance with the Federal Rules of Civil Procedure.

/s/ Donald H. Dawson, Jr.
DONALD H. DAWSON, JR.